AMENDMENTS TO THE SPECIFICATION:

Please amend the specification as follows:

1. Please amend the paragraph beginning at line 13 of page 5 as follows:

According to a second aspect of the invention, there is provided a digital watermark detection apparatus comprising: an acquisition unit configured to acquire a~~ topological invariant as digital watermark information,~~ key information corresponding to ~~the~~ digital watermark information, and a target content in which the digital watermark information is to be embedded; a function detection unit configured to detect <u>a function</u> ~~an embedded-function~~ embedded in the target content; an ordering-function generation unit configured to generate an ordering function based on the key information, and compute a composite function by composition of the ordering function and the embedded [[-]] function; and a topological invariant computation unit configured to compute a topological invariant based on the composite function, <u>and</u> the topological invariant serving as digital watermark information.

2. Please amend the paragraph beginning at line 17 of page 6 as follows:

According to a fourth aspect of the invention, there is provided a digital watermark detection method comprising: acquiring a~~ topological invariant as digital watermark information,~~ key information corresponding to ~~the~~ digital watermark information, and a target content in which the digital watermark information is ~~to be~~ embedded; detecting <u>a function</u> ~~an embedded-function~~ embedded in the target content;

generating an ordering function based on the key information; computing a composite function by composition of the ordering function and the embedded [[-]] function; and computing a topological invariant based on the composite function, and the topological invariant serving as digital watermark information.

    3. Please amend the paragraph beginning at line 22 of page 7 as follows:

According to a sixth aspect of the invention, there is provided a program stored in a computer readable medium for enabling a computer to function as a digital watermark detection apparatus, comprising: means for instructing the computer to acquire a~ topological~invariant~as~digital~watermark~information, key information corresponding to the digital watermark information, and a target content in which the digital watermark information is to be embedded; means for instructing the computer to detect a function an~embedded~function embedded in the target content; means for instructing the computer to generate an ordering function based on the key information; means for instructing the computer to compute a composite function by composition of the ordering function and the embedded [[-]] function; and means for instructing the computer to compute a topological invariant based on the composite function, and the topological invariant serving as digital watermark information.